

## CLAIMS

What is claimed is:

1. A router using source routing for multiple hops of a route through a network,  
each of the multiple hops being encoded at a source by port descriptors in a  
5 header of a packet, the router comprising:  
input router storage which receives port descriptors from a routing  
header of a packet, the port descriptors source coding each hop of the route  
through the network;  
a port descriptor extractor which extracts a next hop port descriptor from  
10 the routing header; and  
a header updating circuit which generates a new header representing a  
remaining route, the header updating circuit inserting an implied exit field in the  
new header.
- 15 2. A method of routing multiple hops of a route through a network, each of the  
multiple hops being encoded at a source by port descriptors in a header of a  
packet, the method comprising, at a router:  
storing port descriptors from a routing header of a packet, the port  
descriptors source coding each hop of the route through the network;  
20 extracting a next hop port descriptor from the routing header; and  
inserting an implied exit field in generating a new routing header  
representing a remaining route.